5th Grade - Fall/Spring
Cycling of Matter in Ecosystems

Program Description for Classroom Teachers

Programs are subject to change based on weather, temperature, road conditions, public health and safety concerns.

Synopsis: During this hands-on program, students will explore how matter cycles and energy flows in Logan Canyon and in the Logan River. Students will explore the aquatic macroinvertebrates that live in the Logan River, learn to identify them with a dichotomous key, and engage in collaborative exploration and discussion to share ideas and communicate findings. Students will explore the insects and critters living in the forest of Logan Canyon and create a model that shows the movement of matter and energy in the ecosystem. Students will leave with an understanding of food as a package of matter and energy, and be able to communicate why it is so important for all living things to obtain matter and energy.	**Students will:** ● **Obtain and communicate information** on "food" as a package of energy and matter that all living things need for body repair, growth, motion, and to maintain body warmth. ● **Develop and use a model** to describe the movement of matter in a forest ecosystem ● Create scientific drawings of organisms found in Logan Canyon and Logan River ● Discover aquatic macroinvertebrates living in Logan River ● Participate in group observation, discovery, and discussion to share ideas and communicate findings ● **Communicate information** about how matter and energy cycle and flow through our local forest ecosystem

Length of Program: 2.5 hours
Location: Stokes Nature Center
Season Offered: Fall or Spring
Program Fee: $6 per student
Logistics:

- The school bus should drop you off at the Stokes Nature Center trailhead of the River Trail in Logan Canyon (on the south shoulder of the highway) where you will walk ~7 minutes up the trail to meet our Naturalists at the Nature Center.
- Plan to divide your group in half, each small group should include a teacher/staff from your school.
- Programs will end at the Stokes Nature Center and you will walk with your students back down the trail (plan 7-10 minutes from the end of the program to walk back to the trailhead).
- Students should wear comfortable clothing that may get dirty.
- We will be outside for the entirety of this program, dressing in layers is advised. Please note that it is usually colder in the canyon than it is in the valley.
- Closed toe shoes are appropriate. Please, **no flip flops**.
- Students should wear visible name tags (packing tape over a name tag keeps them from falling off). This is a big help to our Naturalists.
- Please bring at least one adult per ten students and no more than one adult per five students.

- The Nature Center will be open for students to use the bathroom if necessary. They will need to be supervised by an adult from your school when doing so.
- Water fountains are not available at the Nature Center, students are welcome to bring a full water bottle.

Classroom Teacher Pre-Program Preparation

- If multiple classrooms from your school are participating, please ensure that all teachers on your team receive the confirmation email which contains essential information about your scheduled field experience.
- See curriculum connections below.

Curriculum Connections:

This program supports learning of **SEEd Strand 5.3: Cycling of Matter in Ecosystems**

Standard 5.3.1: Construct an explanation that plants use air, water, and energy from sunlight to produce plant matter needed for growth. Emphasize photosynthesis at a conceptual level and that plant matter comes mostly from air and water, not from the soil. Photosynthesis at the cellular level will be taught in Grades 6 through 8. (LS1.C)

Standard 5.3.2: Obtain, evaluate, and communicate information that animals obtain energy and matter from the food they eat for body repair, growth, and motion and to maintain body warmth. Emphasize that the energy used by animals was once energy from the Sun. Cellular respiration will be taught in Grades 6 through 8. (PS3.D, LS1.C)

Standard 5.3.3: Develop and use a model to describe the movement of matter among plants, animals, decomposers, and the environment. Emphasize that matter cycles between the air and soil and among plants, animals, and microbes as these organisms live and die. Examples could include simple food chains from ecosystems such as deserts or oceans or diagrams of decomposers returning matter to the environment. Complex interactions in a food web will be taught in Grades 6 through 8. (LS2.A, LS2.B)

Science and Engineering Practices	Crosscutting Concepts	Disciplinary Core Ideas
Constructing Explanations Obtaining, Evaluating, and Communicating Information Developing and using models	Energy and Matter	Organization for Matter and Energy Flow in Organisms Energy in Chemical Processes and Everyday Life Interdependent Relationships in Ecosystems Cycles of Matter and Energy Transfer in Ecosystems

Additional Utah Core Curriculum Connections

Subject	Standard	Objective
English Language Arts	5.SL.1	Participate effectively in a range of conversations and collaborations using age-appropriate vocabulary, on topics, texts, and issues.
PE	Strand 2	Students will apply knowledge to attain efficient movement and performance.

	Strand 4	Students will develop cooperative skills and positive personal behavior through communication & respect for self/others.
SEL	K-12	This program supports students' growth in all 5 CASEL core competencies: Self Awareness, Social Awareness, Responsible Decision Making, Self Management, Relationship Skills.